

Master of Financial Technology

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FNT628

Blockchain and Cryptocurrencies

Lecture 7



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Cryptocurrency and Banking Industry

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An Introduction and History of the Modern Banking Industry

The modern banking industry developed gradually over centuries through commercial experimentation, financial crises, and regulatory evolution, becoming a key pillar of the global economy. Its core functions include accepting deposits, safeguarding funds, and providing credit, but its current complexity is the result of a long historical progression from ancient times to the digital age. A strong banking system is essential for economic stability and social well-being, as disruptions can lead either to greater prosperity or serious economic crises.

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Original Purpose of a Bank

Before the Gramm-Leach-Bliley Act of 1999, the banking system was divided into two main types: commercial banks and investment banks, as required by the Glass-Steagall Act of 1933. Commercial banks handled traditional activities such as accepting deposits and providing loans, while investment banks operated in capital markets, focusing on raising and allocating funds through long-term debt and equity securities. This separation ensured that each type of bank specialized in its specific function within the financial system.

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Banks were required to separate into commercial and investment institutions to prevent them from using customers' safe deposits for risky capital market activities. Without this separation, excessive risk-taking could lead to major losses, leaving depositors financially harmed. To protect savings, the U.S. government established the FDIC in 1933, guaranteeing deposits up to a certain limit. In simple terms, commercial banks focus on safety and deposit protection, while investment banks involve higher risk with the goal of achieving greater returns.

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In 1999, the repeal of the Glass-Steagall Act allowed banks to merge commercial and investment functions, meaning a single bank could offer deposit safety while also engaging in high-risk activities in capital markets.

As a result, banks could take larger risks with customers' savings while promoting both safety and higher returns, leading to the emergence of the concept of "too big to fail."

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The Gold Standard

The traditional alternative to fiat money is the gold standard, which has taken three main forms. The gold specie standard used actual gold coins as money and was in place in the U.S. until President F.D. Roosevelt ended it. The gold exchange standard followed, where gold coins no longer circulated, but the government guaranteed a fixed currency-to-gold exchange rate. In 1934, the Gold Reserve Act allowed the U.S. government to confiscate citizens' gold at \$20 per ounce and reset the rate to \$35, effectively profiting at the expense of citizens who were prohibited from owning gold. The gold bullion standard involved no circulating gold coins, but the government sold gold bullion at a fixed price in exchange for currency. It was not until 1975, under President Ford, that U.S. citizens were legally allowed to buy, hold, and trade gold again, although the dollar was now backed by government trust rather than gold.

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- In 1971, President Nixon ended the link between the U.S. dollar and gold under the Bretton Woods system (known as the “Nixon Shock”), making the dollar a fiat currency based on trust in the government rather than gold.
- This shift marked the final break from the gold standard, contributing to major economic effects in the 1970s such as price controls and stagflation, during which the dollar lost significant value.

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The gold standard is considered powerful because it limits inflation by tying money supply to a fixed asset like gold. Unlike fiat money, which can be created digitally in large amounts as seen during quantitative easing after the 2009 financial crisis a gold-backed system prevents excessive money creation and enforces financial discipline on governments and institutions.

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Moral Hazard Created by Central Banks

Moral hazard in financial economics refers to situations where banks or institutions take excessive risks because they expect government or central bank intervention to protect them from losses. This issue is closely linked to the role of central banks as lenders of last resort, providing emergency funds during crises to maintain stability. While this support helps prevent financial collapse, it can also reduce incentives for responsible risk management, even though classical principles such as those proposed by Walter Bagehot suggest lending should be limited and disciplined to avoid encouraging reckless behavior.

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In practice, central bank interventions can create expectations among financial institutions that they will be rescued during crises, reducing the perceived cost of risky behavior. This leads to moral hazard, where profits remain private while potential losses shift to the public. The problem is especially evident in large institutions considered “too big to fail,” as their systemic importance encourages greater risk-taking. The 2007–2008 financial crisis is a clear example, where excessive risk in housing and complex financial products led to massive losses when markets collapsed.

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In response to the 2007–2008 crisis, central banks worldwide such as the Federal Reserve, European Central Bank, and Bank of England took unprecedented actions, including lowering interest rates, providing emergency liquidity, engaging in quantitative easing, and supporting bank bailouts. While these measures stabilized markets, they also reinforced expectations that large financial institutions would be rescued, increasing moral hazard. Extended low interest rates further encouraged risk-taking, as investors searched for higher yields, potentially fueling asset bubbles in real estate, equities, and other financial markets.

Cryptocurrencies have created new opportunities for people without access to traditional banking by enabling digital transactions and value storage via the internet. However, they also pose challenges, including high price volatility, security risks like hacking and fraud, and environmental concerns from energy-intensive mining. Evaluating both the benefits and risks is essential to understanding their potential long-term impact on the global economy, including financial inclusion and sustainability.

Deposit insurance protects depositors and maintains confidence in banks but can create moral hazard, as depositors may pay less attention to risky bank practices, potentially encouraging risky behavior. To mitigate this, regulators and central banks use supervisory and regulatory measures such as capital requirements and international frameworks like the Basel Accords (I, II, III) to ensure proper risk management and strengthen financial stability.

Deposit insurance protects depositors but can create moral hazard by reducing their monitoring of banks. To counter this, regulators use capital requirements, international standards like the Basel Accords, and resolution frameworks that restructure or liquidate failing banks with mechanisms such as bail-ins, ensuring investors bear losses before public funds. Transparency, supervision, and stress tests help identify risks and maintain capital and liquidity buffers. Despite these measures, moral hazard persists because central banks must balance preventing systemic crises with avoiding incentives for future risky behavior, often prioritizing short-term stability during severe economic stress.

The debate over moral hazard in central banking reflects the tension between maintaining financial stability and ensuring market discipline. Central banks must intervene during crises to prevent panic, but excessive reliance on such support can encourage risky behavior. Policymakers now emphasize preventing crises through stronger regulation, better risk management in banks, and international cooperation to monitor systemic risks. Moral hazard arises from the interplay of financial institutions, market expectations, and government policies: while central banks stabilize the economy, their interventions can unintentionally promote risk-taking. Addressing this requires balancing short-term support with frameworks that hold institutions accountable, including supervision, capital requirements, and mechanisms to resolve failing banks, thus mitigating moral hazard while preserving the stabilizing role of central banks.

Inflation and Money vs. Wealth

Money and wealth are related but distinct concepts: money serves as a medium of exchange, unit of account, and sometimes a store of value, while wealth consists of actual goods, services, and productive assets that provide real value. Money itself has no intrinsic worth its usefulness comes from the trust people place in it to facilitate trade. Confusing money with wealth can lead to misunderstandings about economic prosperity, monetary policy, and the effects of inflation, since true wealth lies in tangible resources and productive capacity, not in currency alone.

Inflation occurs when the money supply grows faster than the supply of goods and services, reducing the purchasing power of money. While nominal money increases, real wealth may not rise, making price changes appear like economic growth without an actual increase in resources. Critics argue that expansive monetary policy effectively shifts purchasing power from those holding cash or fixed incomes, as inflation erodes their real wealth, acting like a hidden or indirect tax on the public.

Historical data show that inflation erodes the purchasing power of money over time. For example, the U.S. dollar has lost much of its value since the Federal Reserve was established in 1913, making goods far more expensive in nominal terms even if their real quantity and quality remain unchanged. Central banks influence inflation through tools like interest rates, open market operations, and money supply adjustments. Supporters argue that controlled inflation can stimulate spending and investment, while critics claim it can distort markets and create economic imbalances. Some economists caution that inflation may create the illusion of growth, as rising nominal wages, asset prices, and government spending can appear like economic expansion even if real production of goods and services does not increase.

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Inflation affects the distribution of wealth, often benefiting borrowers by reducing the real value of debt while hurting savers and those on fixed incomes. Expectations of rising prices can discourage saving and encourage immediate spending or speculative investments, which may temporarily boost economic activity but also increase the risk of financial bubbles and long-term instability. Since savings are essential for funding business investment and supporting economic growth, inflation that undermines saving incentives can lead to greater economic volatility over time.

Wealth consists of tangible and intangible assets such as homes, machinery, land, and businesses that provide real value and productive capacity. Money, by contrast, is a tool for measuring and exchanging this wealth, and simply increasing the money supply does not create more real wealth. True economic growth arises from innovation, productivity improvements, and the creation of valuable goods and services. Historically, societies have sought forms of money that are stable and trusted, such as gold and silver, which functioned as reliable stores of value due to their durability, divisibility, portability, and scarcity.

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Predictions on Cryptocurrencies and Its Future Effects

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Historical examples, like the transformation of U.S. agriculture, illustrate how technological innovation can reshape economies. Despite a dramatic decline in agricultural employment from nearly 90% to under 2% of the workforce food production increased, prices fell, and living standards improved. This outcome reflects the concept of creative destruction, where innovation replaces outdated industries and practices with more efficient ones, causing short-term disruption but ultimately driving higher productivity, economic growth, and improved prosperity.

Technological innovation in agriculture sharply increased productivity, reducing the need for manual labor. Rather than causing mass unemployment, workers transitioned into new industries, acquired new skills, and pursued entrepreneurial opportunities, illustrating that economic evolution often replaces old jobs with higher-value ones, boosting productivity, wages, and living standards. A similar pattern may occur with cryptocurrencies and blockchain technology, which offer decentralized methods of transferring value without traditional banks, potentially reshaping the financial system as mechanization once transformed agriculture.

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The rise of cryptocurrencies has sparked debate among economists and policymakers about their long-term impact. Supporters argue they could transform how money is stored, transferred, and managed, enabling faster, cheaper transactions without central intermediaries. Cryptocurrencies may also increase financial inclusion, especially in developing regions where traditional banking is limited. Critics, however, point to regulatory, technological, and economic challenges that could hinder widespread adoption as mainstream financial instruments.

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Central Bank Digital Currencies (CBDCs) are government-issued digital versions of national currencies that aim to combine the efficiency of digital payments with the stability of traditional money. The rise of cryptocurrencies highlights a broader trend toward digitalization and decentralization, potentially reshaping financial systems, governance, and economic interactions. Using the concept of creative destruction, cryptocurrencies may reduce the need for some traditional intermediaries while creating new industries and opportunities, just as technological innovations in agriculture and other sectors transformed economies and labor markets.

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Bitcoin and Central Banking

Bitcoin, introduced in 2009, is a decentralized digital currency that operates independently of central banks, challenging traditional monetary systems. Critics of central banking argue that managing the money supply can lead to inflation, reducing the purchasing power of currency and eroding savings, wages, and fixed incomes over time. Inflation can also act as an indirect tax, as government spending financed by monetary expansion gradually diminishes the real value of money held by the public, allowing authorities to fund programs without immediate visible taxation.

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Early predictions of Bitcoin's collapse proved inaccurate, as it maintained value and attracted investors, tech companies, and financial institutions. Its rise prompted governments and regulators to take notice, issuing warnings about risks such as price volatility, security concerns, and fraud, while exploring new approaches to regulation. The attention reflects the recognition that cryptocurrencies represent a novel financial technology operating on decentralized global networks, challenging traditional regulatory frameworks and prompting policymakers to balance innovation with oversight.

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The rise of Bitcoin has reignited debates about the role of central banks, monetary policy, and government debt. Some critics question whether traditional monetary institutions serve the public effectively, while cryptocurrencies are seen by supporters as market-driven alternatives. Bitcoin operates independently of governments, with its value and adoption determined by user confidence and market demand rather than political decisions.

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While the complete replacement of central banks by cryptocurrencies is highly speculative, central banks remain crucial for currency issuance, financial stability, regulation, and crisis response, functions that decentralized systems cannot fully replicate. Nevertheless, cryptocurrencies and blockchain technology are driving innovations in digital payments, transparency, and decentralized finance, with banks exploring blockchain for efficiency and security. The rise of digital currencies has also prompted governments to consider Central Bank Digital Currencies (CBDCs), combining blockchain-inspired technology with regulatory oversight to modernize payment systems while preserving financial stability.

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Bitcoin at the Present

Bitcoin occupies a unique role as a decentralized digital asset that operates independently of governments and central banks. Its fixed supply of 21 million coins, created gradually through mining, gives it a form of digital scarcity similar to gold. As a result, Bitcoin is often seen as “digital gold,” serving primarily as a store of value and a potential hedge against inflation, currency devaluation, or political instability, rather than just a medium of exchange.

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The rise of cryptocurrency exchanges and digital wallets has made Bitcoin widely accessible, allowing people worldwide to buy, store, and transfer it. However, Bitcoin faces significant challenges, including high price volatility, which limits its use as a stable medium of exchange, and regulatory uncertainty, as governments vary in their approaches from supportive frameworks to strict restrictions. These factors create a complex and evolving global environment for digital assets.

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While the Bitcoin blockchain is highly secure, related systems like exchanges and wallets remain vulnerable, highlighting the importance of strong security practices. Bitcoin mining also raises environmental concerns due to high energy consumption, prompting some miners to explore renewable or more efficient solutions. Beyond finance, Bitcoin has spurred a broader blockchain and decentralized finance (DeFi) movement, inspiring new platforms for lending, trading, and asset management without traditional intermediaries. At the same time, banks and central banks are exploring ways to integrate blockchain technology, including the development of Central Bank Digital Currencies (CBDCs) that combine regulatory oversight with digital efficiency.

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Bitcoin in Government: Strategic Transformations

Governments are increasingly examining the strategic implications of Bitcoin and blockchain technology for national economic policy, financial infrastructure, and public administration. Some are considering holding Bitcoin in national reserves to diversify assets, while others explore integrating mining into energy strategies using renewable or surplus power. Policymakers are also developing tax frameworks to regulate cryptocurrency trading, mining, and international transactions as digital assets become more integrated into financial markets.

Governments are exploring blockchain applications for public services, including G2C payments for welfare, subsidies, or emergency aid, as well as digital registries for land ownership, identities, and professional licenses. Blockchain's immutable records can enhance transparency, reduce administrative inefficiencies, and limit corruption. Bitcoin is also being considered for cross-border settlements and diplomatic transactions, offering faster, cheaper alternatives where traditional systems are slow, costly, or restricted, though these applications remain largely experimental.

The Future of Bitcoin in Banking

The future may see greater integration of Bitcoin with traditional banking, including custody services, Bitcoin-backed loans, and tokenized financial instruments. Banks could incorporate Bitcoin into Basel-compliant liquidity frameworks and leverage innovations like the Lightning Network or Fedimint for faster, near real-time cross-border settlements, complementing or enhancing traditional payment systems such as SWIFT.

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Bitcoin and Financial Market Innovation

Bitcoin has become a major driver of innovation in financial markets, enabling new investment products like ETFs, derivatives, and margin trading that allow exposure without directly holding the cryptocurrency. It is also being integrated into automated portfolio management and robo-advisors, broadening access to digital assets. The transparent blockchain ledger enhances financial monitoring and stability, while insurance products are emerging to manage risks such as cyberattacks and volatility. Overall, Bitcoin is reshaping markets, creating new financial instruments, and expanding opportunities for institutional and retail investors alike.

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Summary



Thank You